

If this exhibition had been merely a flower-show on a gigantic scale there would have been little or no need to advert to it in these columns. But associated with it was a botanical congress attended by many of the chief European notabilities, and presided over by the late Alphonse de Candolle. The results of their discussions were recorded in a report of proceedings which still forms a most valuable document. Copies are now rarely met with, although they were distributed widely among foreign and British botanical libraries.

We have a special reason for alluding to this nearly forgotten congress, because it may be looked on as the progenitor of two important events in the modern history of the Royal Horticultural Society. A large surplus was eventually derived from the exhibition, and this surplus was devoted to the publication of the proceedings before mentioned, to charitable purposes, and to the purchase of the valuable library of the late Dr. Lindley. This library was placed in the hands of trustees for the benefit, primarily, of the fellows of the Royal Horticultural Society, and, under certain regulations, of the general public also. In this way the society once more became possessed of an extensive library, which cannot be alienated if evil days should again arise. It is now, after various vicissitudes, fittingly installed, at the expense of Baron Sir Henry Schröder, in the new building erected for the society in Vincent Square, Westminster.

Thus has been accomplished one result of the congress of 1866. Another consequence of that meeting was the formation of a scientific committee under the presidency of Sir Joseph Hooker, which has endeavoured so far as circumstances permitted to carry out the objects formulated in M. de Candolle's presidential address. The early days of the committee, when such men as Sir Joseph Hooker, Mr. Berkeley, Prof. Westwood, Mr. Wilson Saunders, Colonel Clarke, Mr. Andrew Murray, Sir William, then Mr., Thiselton-Dyer, and other naturalists took part in the discussions, remain as a pleasant memory. The Rev. Prof. Henslow, who acted as secretary for the last quarter of a century, has only lately relinquished his office. The committee still includes a body of experts in many departments of horticulture and natural history generally.

We have alluded to the new building, to the erection of which Baron Schröder has magnificently contributed, whilst others have not been backward. Much, however, remains to be done, and until the existing debt is cancelled not much in the way of scientific experiment or research can be effected. The society has been exceptionally fortunate in its centenary year. Not only has it secured a fine hall for exhibition purposes, together with commodious offices and accommodation for the library, but through the generosity of Sir Thomas Hanbury it has come into possession of the late Mr. G. F. Wilson's interesting garden at Wisley, near Weybridge.

The old garden at Chiswick, the value of the services of which in the past is beyond compute, has been abandoned, soil and climate no longer being propitious for gardening operations. The cultural trials hitherto carried out at Chiswick will henceforth be conducted at Wisley, and there is every reason to hope that in a short time a research station under a competent director may be established, and thus a great and pressing need may be supplied.

This is rather a long preface to the notice of the *Journal*, but we hope it will not be thought irrelevant. The necessity for a journal to link together all the otherwise separate departments of the society has always been recognised, but in the evil days aforementioned the publication was often spasmodic and irregular. Since the appointment of the Rev. W. Wilks as secretary, and under the steady impulse of the president, Sir Trevor Lawrence, a great improvement all round has been manifested, and in no way more remarkably than in the contents and regularity of issue of the journal. So marked is the improvement that it has become too much for the digestion of some people, and some of the fellows are crying out, not for more, but for a more limited supply.

Our notice has extended to such a length that we can only indicate some of the contents other than those relating merely to practical cultivation; such are Dr. Cooke's article on the fungous pests of the shrubbery, with coloured illustrations; on the heredity of acquired characters, by Prof.

Henslow; gooseberry mildew, by Mr. Salmon; diseases of Calanthes, by Mr. Bidgood; note on electric heating, by Mr. Rogers; diseases of the potato, by Mr. Massee; Indian primulas, by Sir George Watt; and a large number of other communications which tend to show that the scientific side of horticulture is not neglected. The abstracts from botanical and horticultural literature which have of late formed so important a feature of the *Journal* are omitted from the present part, possibly because so much space has, not unnaturally, been devoted to the proceedings in connection with the centenary celebration and the formal opening of the new hall by H.M. the King.

The interests of the commercial side of horticulture, however great their importance, can very well be left to take care of themselves. Nevertheless, the cultivators may well look to the society for light and guidance in such matters as cucumber spot, and the many diseases which so very seriously affect their business prosperity. Progressive horticulture looks to the society to investigate outstanding problems, open out new paths, and generally to acquire and diffuse useful knowledge. Even if not immediately useful, such knowledge is sure eventually to be of advantage even to the "practical man." With a research station at Wisley, a competent director, a sympathetic scientific committee to direct and advise, and an energetic secretary, the society may on entering its second centenary look forward to being able to advance scientific horticulture in a more thorough manner than it has ever done before.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

THE *Pioneer Mail* states that a gentleman of Nagpur has bequeathed a sum of fifty thousand rupees to the Central Hindu College, Benares.

At the spring graduation ceremony of the University of Edinburgh on April 7 the honorary degree of LL.D. was conferred upon Prof. W. W. Cheyne, C.B., F.R.S., Dr. J. H. Jackson, F.R.S., Dr. A. D. Waller, F.R.S., Sir Frank E. Younghusband, and Prof. G. A. Gibson.

THE Catholic University of America will receive, says *Science*, a bequest of 20,000*l.* from Miss Helen Tyler Gardiner. We learn from the same source that Mr. Andrew Carnegie has agreed to give a 10,000*l.* library to the Washington and Lee University on condition that the university raises an endowment of 10,000*l.* for maintaining it.

THE *Glasgow Herald* announces that by the will of the late Mr. Donald the sum of 20,000*l.* is bequeathed to the Glasgow and West of Scotland Technical College, to be paid on the death of Mrs. Donald. After various other bequests have been made, the residue of the estate is to go to the governors of the Glasgow and West of Scotland Technical College for purposes specified in the trust disposition and settlement.

THE committee of the Privy Council has decided to recommend the King to grant a Charter incorporating a university in Sheffield. A large sum of money has already been given or promised for the endowment of the university, and, in addition, the city council has pledged the city to the gift annually of a sum equal to the proceeds of a rate of 1*d.* in the pound (the capitalised value of which gift is 200,000*l.*). The draft Charter of the proposed university provides for the establishment of a teaching university with powers to grant degrees in the faculties of arts, science, technology, and medicine.

THE articles of agreement under which it is proposed to combine the Massachusetts Institute of Technology and Harvard University have been made public. Provision is made for a joint school of industrial science, to be known under the present name of the Institute of Technology, to be governed by an executive board of nine members, of which three shall represent Harvard, and to be maintained by present institute funds, augmented by the income of all funds of the Lawrence Scientific School, by three-fifths of the net income which may accrue from the Gordon McKay bequest, amounting to several millions, and by the income of all property which Harvard may hereafter acquire for the promotion of instruction in industrial science.

THE new regulations recently issued by the War Office, under which commissions in the Army may be obtained by university candidates, provide that commissions shall be allotted each half-year to the University of London. To satisfy the requirements of the regulations, the Senate has appointed a nomination board for military commissions which will nominate qualified students for commissions, and arrangements have been made for the instruction of candidates in military subjects. To be eligible for a commission, a candidate must have graduated as an internal student, and this involves three years' study at one or more of the schools of the university. Before a student can be nominated for a commission he must, as a rule, have attended the various courses of instruction in military subjects in the university, and he must have been attached for two periods of six weeks, or for one period of twelve weeks, to a regular unit. Courses of lectures in military subjects are being given at the University of London by Colonel H. A. Sawyer, P.S.C., and Lieut.-Colonel F. N. Maude, P.S.C., late R.E.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, February 23.—"Two Cases of Trichromic Vision." By Dr. F. W. **Edridge-Green**. Communicated by Dr. F. W. Mott, F.R.S.

One case (Prof. J. J. Thomson) sees only three colours in the bright spectrum—red, green, and violet. He can distinguish nothing of the nature of pure yellow, like the sensation given him by the sodium flame, in the spectrum. There is no definite colour to him at the portion of the spectrum where the normal sighted see pure blue. Reddish-green would describe the orange and yellow regions and greenish-violet the blue. λ 5950 (orange-yellow) is the point which differs most from red and green. There was no shortening of either end of the spectrum.

Difference of Hue Perception.—The author then tested him with his apparatus for ascertaining the size of different parts of the spectrum which appear monochromatic, and found him defective in distinguishing differences of hue.

Colour Mixtures.—Tested with Rayleigh's apparatus for matching spectral yellow by a mixture of red and green, the mixed colour of his match always appeared green to the author.

Classification Test.—Only a few colours were selected in each case. On being asked to pick out all the yellows he chose those with orange in them. He had considerable difficulty in matching the colours. In common with the cases previously observed, the effects of simultaneous contrast were much more marked than in the normal sighted. Two wools changed colour to him on being contrasted, when no change was evident to the author.

Lantern Test.—He correctly named the red, green, and violet with and without the neutral glasses, and saw them at the normal distance. He had difficulty with yellow and blue. He called pure yellow "greenish yellow."

The other case is that of Mr. P. S. Barlow, a research student in the Cavendish Laboratory, and was similar in most respects to the above.

The author uses the term trichromic as a statement of the fact that persons having this vision see only three colours in the bright spectrum, whilst the normal sighted see six, and may, therefore, be designated hexachromic. It is probable that the appearance of the bright spectrum to the trichromic is very similar to that of a spectrum of feeble luminosity to the normal sighted, in which only three colours—red, green, and violet—are seen. The defective difference perception which is found in these cases accounts for most of the facts. Both these cases are bordering on the tetrachromic, as the sodium flame appears to give rise to a distinct sensation.

March 2.—"Atmospheric Electricity in High Latitudes." By George C. **Simpson**, B.Sc. Communicated by Arthur Schuster, F.R.S.

This paper is an account of a year's work on atmospheric electricity undertaken at Karasjok, Norway, from October, 1903, to October, 1904, with the results of a month's observations on atmospheric radio-activity made at Hammerfest.

Karasjok is situated well within the Arctic Circle ($69^{\circ} 17' N.$), and during the winter has a severe Arctic climate, so that it is well situated for finding the influence of meteorological elements and the presence or absence of direct sunlight on the electrical conditions of the atmosphere.

The observations were limited to determinations of the potential gradient, electrical dissipation, atmospheric ionisation, and atmospheric radio-activity. A continuous record of the potential gradient was obtained by means of a Benndorf self-registering electrometer, and measurements of the dissipation and ionisation were made three times each day unless the weather made it impossible to use the instruments. Measurements of the radio-activity were made between the hours of 10 to 12 a.m., 3 to 5 p.m., and 8.30 to 10.30 p.m. on 253 days, and in addition 42 measurements were made between 3 and 5 a.m. The results of the work are shortly as follows:—

YEARLY VARIATION. Potential Gradient.—The yearly course was found to be in accordance with the general rule for the northern hemisphere—rising rapidly from October to February, when it reaches a maximum, then falling more rapidly until the end of May, after which it remains constant until the winter sets in again during October. **Dissipation.**—The yearly course is exactly opposite to that of the potential gradient, the curves representing the two being almost mirror images of one another. **Ionisation.**—The course of the ionisation consists of a nearly linear six months' fall from the beginning of September to the end of February, followed by a similar six months' rise from March to the end of August.

DAILY VARIATION. Potential Gradient.—The daily course for the whole year consists of a single period having a minimum about 5 a.m. and a maximum about 9 p.m. **Dissipation.**—For the whole year the dissipation is slightly higher at midday than earlier in the morning, while the evening observations show the lowest dissipation of the three. **Ionisation.**—The daily period of the ionisation is not so pronounced as that of the dissipation, but the ionisation is slightly lower in the evening than in the morning or at midday during the whole year.

RELATION BETWEEN THE METEOROLOGICAL AND ELECTRICAL CONDITIONS OF THE ATMOSPHERE.—**Wind.**—As is to be expected, the dissipation increases greatly with the wind strength. **Temperature.**—Both the ionisation and dissipation become much less as the temperature goes down. With temperatures between $10^{\circ} C.$ and $15^{\circ} C.$ the dissipation is 4.95 per cent. and the ionisation 0.44 per cent., while with temperatures below $-20^{\circ} C.$ these become 0.83 per cent. and 0.17 per cent. respectively. The potential gradient increases as the temperature falls. **Relative Humidity.**—With rising relative humidity the dissipation falls rapidly, and the ratio of negative to positive dissipation increases. When the whole year is taken into account, the same result is found for the ionisation; but for the winter and summer six months, taken separately, the effect of the humidity of the air on the ionisation is not apparent.

INTERRELATION OF ELECTRICAL FACTORS.—Both the dissipation and ionisation greatly influence the potential gradient. Low values of ionisation and dissipation are accompanied by high values of the potential gradient, and *vice versa*. The dissipation increases with the ionisation.

THE AURORA AND THE ELECTRICAL CONDITION OF THE ATMOSPHERE.—No relation whatever could be detected between the aurora and the electrical conditions of the atmosphere. The most careful watching of the electrometer needle revealed no variation of the potential gradient with variations of the aurora.

RADIO-ACTIVITY.—Measurements of the radio-activity were made by Elster and Geitel's method, and their arbitrary unit was used in expressing the results. A most distinct yearly course of the radio-activity was found, the maximum, 129 (mean for month), falling in December, and the minimum, 47, in June. The radio-activity has also a very pronounced daily course, the maximum, 162 (mean for year), falling in the early hours of the morning, and the minimum, 58, about midday.

There is a distinct connection between the radio-activity and the meteorological conditions of the atmosphere; the radio-activity increases as the temperature falls, rises as